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We Claim:

1. An isolated MHC Class II immunogenic peptide comprising at least 9 contiguous amino acids of a MHC Class II core binding sequence from a tyrosinase sequence.

2. The immunogenic peptide of claim 1 where said peptide contains a sequence selected from the group consisting of QNILLSNAPLGPQFP (Ty 56-70), NILLSNAPLGPQFP (Ty 57-70), DYSYLQSDPDSFQD (Ty 448-462), YSYLQSDPDSFQD (Ty 449-462), and SYLQSDPDSFQD (Ty 450-462).

3. The immunogenic peptide of claim 2 having at least 9 contiguous residues, wherein said peptide has 1, 2, 3, 4 or 5 amino acid deletions at the carboxy or amino terminus and maintains ~~immunogenic~~ activity.

4. The immunogenic peptide of claim 1, wherein said peptide sequence contains at least one amino acid modification of said tyrosinase sequence to enhance binding of peptide to an MHC Class II molecule or to a T cell receptor.

5. The immunogenic peptide of Claim 4 containing a sequence selected from the group consisting of QNILLSNAPVGPQFP (Ty 56-70, L65→V), QNILLSNVPGPQFP (Ty 56-70, A63→V and L65→V), QNILLSNVPLGPQFP (Ty 56-70, A63→V), DYSYLQSDPDSSQD (Ty 448-462, F460→S), DQSYLQSDPDSFQD (Ty 448-462, Y449→Q), DYSYLQSDPDSFQD (Ty 448-462, Y449→F), DYSFLQSDPDSFQD (Y451→F), and DYSYLQDSVPDSFQD (Ty 448-462, D456→V).

6. The immunogenic peptide of claim 5 having at least 9 contiguous residues of claim 2, wherein said peptide has 1, 2, 3, 4 or 5 amino acid deletions at the

carboxy or amino terminus and maintains requisite activity.

7. The immunogenic peptide of claim 4 wherein an amino acid substitution is within a 9 amino acid Class II binding core sequence in said peptide.

8. The peptide of claim 7, wherein said amino acid substitution is located at a position selected from the group consisting of: (i) the first position, (ii) the fourth position, (iii) the sixth position, (iv) the seventh position, (v) the ninth position and (vi) combinations of at least two of (i) - (v) in the sequence of the core binding region of the peptide.

9. The peptide of claim 6, wherein said amino acid substitution are located at the first and sixth positions.

10. An immunogenic peptide having the core binding sequence formula $X_1LX_2NX_3X_4LX_5$ or $X_1LQX_2SX_3X_4DX_5$ wherein:

X_1 is any hydrophobic amino acid;

X_2 is any hydrophobic amino acid; aspartic acid, or glutamic acid;

X_3 is any hydrophobic or hydroxyl amino acid;

X_4 is any polar, charged or aliphatic amino acid; and

X_5 is any polar or aliphatic amino acid.

11. The peptide of claim 10 wherein the peptide is lengthened by flanking regions at the amino and/or carboxy termini to a total of 34 amino acids.

12. The peptide of claim 10, wherein X_1 is selected from the group consisting of methionine, leucine,

derivative of tyrosine
(SEQ ID NO: 15)
(SEQ ID NO: 16)

isoleucine, tyrosine, valine, tryptophan and phenylalanine.

13. The peptide of claim 10, wherein X_2 is selected from the group consisting of phenylalanine, tryptophan, leucine, isoleucine, alanine, valine, aspartic acid and glutamic acid.

14. The peptide of claim 10, wherein X_3 is selected from the group consisting of methionine, leucine, threonine, isoleucine, serine and valine.

15. The peptide of claim 10, wherein X_4 is selected from the group consisting of aspartic acid, alanine, serine, valine, histidine, proline, asparagine, methionine, threonine, leucine and isoleucine.

16. The peptide of claim 10, wherein X_5 is selected from the group consisting of alanine, serine, glutamine, glycine, leucine, valine and threonine.

17. The immunogenic peptide of claim 1 wherein said peptide is recognized by HLA-DR CD4⁺ T lymphocytes.

18. The immunogenic peptide of claim 10 wherein said peptide is recognized by HLA-DR CD4⁺ T lymphocytes.

19. The immunogenic peptide of claim 1 linked to a MHC Class II molecule.

20. The immunogenic peptide of claim 10 linked to a MHC Class II molecule.

21. The immunogenic peptide-MHC complex of claim 19 wherein said MHC Class II molecule is the β chain of the MHC Class II molecule.

22. The immunogenic peptide-MHC complex of claim 20 wherein said MHC Class II molecule is the β chain of the MHC Class II molecule.

23. A pharmaceutical composition comprising at least one peptide of claim 1, and an acceptable excipient, diluent or carrier.

24. A pharmaceutical composition comprising at least one peptide of claim 10, and an acceptable excipient, diluent or carrier.

25. A pharmaceutical composition comprising at least one peptide of claim 19, and an acceptable excipient, diluent or carrier.

26. A pharmaceutical composition comprising at least one peptide of claim 20, and an acceptable excipient, diluent or carrier.

27. A method of preventing or treating melanoma comprising administering a therapeutically effective amount of the the pharmaceutical composition of claim 23 to a mammal in an effective amount to stimulate the production of protective antibodies or immune cells.

28. A method of preventing or treating melanoma comprising administering a therapeutically effective amount of the the pharmaceutical composition of claim 24 to a mammal in an effective amount to stimulate the production of protective antibodies or immune cells.

29. A method of preventing or treating melanoma comprising administering a therapeutically effective amount of the the pharmaceutical composition of claim 25

to a mammal in an effective amount to stimulate the production of protective antibodies or immune cells.

30. A method of preventing or treating melanoma comprising administering a therapeutically effective amount of the the pharmaceutical composition of claim 26 to a mammal in an effective amount to stimulate the production of protective antibodies or immune cells.

31. A purified and isolated nucleic acid sequence encoding a peptide according to claim 1.

32. A purified and isolated nucleic acid sequence encoding a peptide according to claim 10.

33. A purified and isolated nucleic acid sequence encoding a peptide according to claim 19.

34. A purified and isolated nucleic acid sequence encoding a peptide or polypeptide according to claim 20.

35. A recombinant expression vector comprising at least one nucleic acid sequence of claim 1.

36. A recombinant expression vector comprising at least one nucleic acid sequence claim 10.

37. A recombinant expression vector comprising at least one nucleic acid sequence of claim 19.

38. A recombinant expression vector comprising at least one nucleic acid sequence of claim 20.

39. The vector of claim 35, wherein the expression vector is a eukaryotic expression vector or prokaryotic expression vector.

5 40. The vector of claim 36, wherein the expression vector is a eukaryotic expression vector or prokaryotic expression vector.

10 41. The vector of claim 37, wherein the expression vector is a eukaryotic expression vector or prokaryotic expression vector.

15 42. The vector of claim 38, wherein the expression vector is a eukaryotic expression vector or prokaryotic expression vector.

43. A host cell containing with the recombinant expression vector according to claim 39.

20 44. A host cell containing with the recombinant expression vector according to claim 40.

45. A host cell containing with the recombinant expression vector according to claim 41.

25 46. A host cell containing with the recombinant expression vector according to claim 42.

30 47. Antibodies reactive with an immunogenic peptide of claim 1.

48. Antibodies reactive with an immunogenic peptide of claim 10.

35 49. Antibodies reactive with an immunogenic peptide of claim 19.

50. Antibodies reactive with an immunogenic peptide of claim 20.

51. The antibodies of claim 48 wherein said antibodies are monoclonal.

52. A therapeutic method of preventing or treating melanoma comprising administering the pharmaceutical composition of claim 23 to a mammal in an effective amount to stimulate the production of protective antibodies or immune positive CD4⁺ T-cells.

53. A therapeutic method of preventing or treating melanoma comprising administering the pharmaceutical composition of claim 24 to a mammal in an effective amount to stimulate the production of protective antibodies or immune positive CD4⁺ T-cells.

54. A therapeutic method of preventing or treating melanoma comprising administering the pharmaceutical composition of claim 25 to a mammal in an effective amount to stimulate the production of protective antibodies or immune positive CD4⁺ T-cells.

55. A therapeutic method of preventing or treating melanoma comprising administering the pharmaceutical composition of claim 26 to a mammal in an effective amount to stimulate the production of protective antibodies or immune positive CD4⁺ T-cells.

56. The method of claim 52, wherein said composition includes isolated tyrosine protein.

57. A method for determining or isolating Class II tumor associated antigens, said method comprising the steps of:

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- (a) contacting a candidate antigen with antigen presenting cells for a time sufficient to allow the antigen to be processed by said antigen presenting cells;
- 5 (b) contacting said antigen presenting cells step (a) with CD4⁺ T lymphocytes; and
- (c) screening for recognition of said antigen presenting cells by said CD4⁺ T lymphocytes.

10 58. The method of claim 57 wherein said candidate antigen is selected from the group consisting of a crude cellular lysate, a purified protein, a peptide, or proteins encoding by a DNA library.

15 59. The method of claim 57 wherein said antigen presenting cells are EBV transformed B cells, monocytes or dendritic cells.

20 60. The method of claim 57 wherein said candidate antigen is selected from the group consisting of MART-1, gp100, gp-75, MAGE-1, MAGE-3, or p15 or any other tumor associated protein known to be recognized by CD8⁺T cells via MHC Class I restriction.

25 61. The melanoma antigens or tumor associated antigens isolated by screening candidate antigens according to claim 57.

30 62. A purified and isolated nucleic acid sequence encoding a peptide comprising at least about 9 contiguous amino acids, said peptide being derived from a tyrosinase sequence, said peptide being reactive to CD4⁺ T-lymphocytes.

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63. A recombinant expression vector comprising
at least one nucleic acid sequence of claim 62.

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